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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Howard E. Hilton

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EXAMINER

PERILLA, JASON M

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

02/09/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

Office Action Summary	Application No. 09/846,138	Applicant(s) HILTON ET AL.	
	Examiner JASON M. PERILLA	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5 and 12 is/are allowed.
- 6) ☒ Claim(s) 6-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-3, and 5-12 are pending in the instant application.

Response to Amendment/Argument

2. The Applicant's arguments, filed November 11, 2008, have been fully considered.

In view of the Applicant's remarks and amendments to the claims, the prior art rejections of claims 1-3 and 5 have been withdrawn.

In view of the Applicant's remarks and amendments to the claims, new/updated prior art rejections of claims 6-11 are presented below.

With respect to the Applicant's argument against the application of Iwamatsu under 35 U.S.C. § 102 as applied to claim 6 because Iwamatsu discloses *subtractors* rather than the claimed *adders*, the argument is not persuasive. Iwamatsu's first and second adders of figure 4 are analogous to the ones of figure 20 (i.e. refs. 25c and 25d). Iwamatsu discloses that the references 25c and 25d of figure 20 perform subtraction of "the I-channel signal from the Q-channel signal" (col. 14, lines 59-61). However, an appropriate interpretation of Iwamatsu is that a negated value of the I-channel signal *is added* to a positive value of the Q-channel signal. This follows from the notations on the inputs of Iwamatsu's adders 25c and 25d of figure 20. The fact that the I-channel signal is negated does not require Iwamatsu's adders to be considered "subtractors" as suggested by the applicant.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-11 rejected under 35 U.S.C. § 103(a) as being unpatentable over Iwamatsu (US 6175591 – previously cited).

Regarding claim 6, Iwamatsu discloses by figure 4 a generalized digital filter for filtering two-component signal information (Ich and Qch) of a receiver (fig. 1b) comprising a plurality of receiver elements (fig. 1b, refs. 22, 23, 24, and 27), the filter comprising: a) a dual input port (“Ich INPUT” and “Qch INPUT”), having an I input for a signal x_I and a Q input for a signal x_Q , wherein x_I and x_Q are components of a two-component input signal x (figure 2, “IF-IN”) ; b) a dual output port, having an I output for a signal y_I (fig. 4, “Ich OUTPUT”) and a Q output for a signal y_Q (fig. 4, “Qch OUTPUT”), wherein y_I and y_Q are components of a two-component output signal y ; c) a first signal path (25a-1), characterized by a first impulse response (FIR filter 25a-1), having an input coupled to the I input port and a first output; d) a second signal path (25b-1), characterized by a second impulse response (FIR filter 25b-1), having an input coupled to the Q input port and a second output; e) a third signal path (25a-2), characterized by a third impulse response (FIR filter 25a-2), having an input coupled to the I input port and a third output; f) a fourth signal path (25b-2), characterized by a fourth impulse response (FIR filter 25b-2), having an input coupled to the Q input port and a fourth output; g) a first adder (not labeled) for adding said first and second outputs and for

coupling the sum thereof to said I output; and h) a second adder (not labeled) for adding said third and fourth outputs and for coupling the sum thereof to said Q output.

Iwamatsu's first and second adders of figure 4 are analogous to the ones of figure 20 (i.e. refs. 25c and 25d). With reference to the illustration of figures 20 and figure 4, an appropriate interpretation of Iwamatsu is that a negated value of the I-channel signal *is added* to a positive value of the Q-channel signal.

Further regarding claim 6, Iwamatsu does not explicitly disclose that the first, second, third, and forth impulse responses provide frequency compensation for impairments imposed by a plurality of defective elements among the plurality of receiver elements. However, as is understood by ones having ordinary skill in the art, Iwamatsu's receiver elements such as demodulators and converters (fig. 1b, refs. 22, 23, 24, and 27) cause impairments due to their imperfect transfer functions which are inherent due to manufacturing limitations. Iwamatsu discloses that the transversal filter (encompassing the first, second, third, and forth impulse responses) is determined to "compensate for transmission path distortion." (col. 2, lines 15-20). In the case of Iwamatsu, the "transmission path" can be considered to encompass the channel from the transmitter to the receiver as well as the front end elements in the receiver (fig. 1b, refs. 22, 23, 24, and 27). Therefore, it would have been obvious (if not already being implied or inherent in Iwamatsu's disclosure) to one having ordinary skill in the art at the time which the invention was made that Iwamatsu's transversal filter could compensate for the totality of the "transmission path" to include compensation for imperfections in

the "defective elements" of the receiver because such imperfections contribute to an overall received signal's degradation.

Regarding claim 7, Iwamatsu discloses the limitations of claim 6 as applied above. Further, according to figure 4 of Iwamatsu, the four impulse responses are independent of one another because they are embodied as four separate FIR filters.

Regarding claim 8, Iwamatsu discloses the limitations of claim 6 as applied above. Further, Iwamatsu discloses that all four impulse responses are characterized to have finite lengths because they are each embodied as a (FIR) finite impulse response filter (col. 2, lines 14-16).

Regarding claim 9, Iwamatsu discloses the limitations of claim 8 as applied above. Further, Iwamatsu discloses that all four impulse responses are each constrained to have equal lengths of N taps (col. 2, lines 14-16).

Regarding claim 10, Iwamatsu discloses the limitations of claim 6 as applied above. Further, Iwamatsu discloses that the four paths are realized by finite impulse response filters as applied to claim 8 above.

Regarding claim 11, Iwamatsu discloses the limitations of claim 10 as applied above. Further, Iwamatsu discloses that each of the finite impulse response filters are independently characterized because each of the filters is independent according to figure 4.

Allowable Subject Matter

5. Claims 1-3, 5, and 12 are indicated to contain allowable subject matter.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON M. PERILLA whose telephone number is (571)272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2611

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jason M Perilla/
Primary Examiner, Art Unit 2611
February 2, 2009

/jmp/